

Amendment
Application No. 10/797,188
Attorney Docket No. 960045E

AMENDMENTS TO THE CLAIMS

Listing of claims:

This listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently Amended) A method for fabricating a semiconductor device comprising the steps of:

forming a conductor pattern over a semiconductor substrate;

forming a first insulation film covering the conductor pattern and having a substantially flat surface;

forming over the first insulation film a second insulation film having etching characteristics different from those of the first insulation film;

forming over the second insulation film a third insulation film having etching characteristics different from those of the second insulation film:

forming over the third insulation film a mask layer; and

~~etching the third insulation film with the mask layer as a mask and the second insulation film as a stepper to form an opening in the third insulation film;~~

~~etching the second insulation film in the opening with the first insulation film as a stepper so as to open the opening down to the first insulation film; and~~

~~etching the first insulation film in the opening~~

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forming a hole in the third insulation film, the second insulation film and the first insulation film;

the step of forming the hole including a first step of etching the third insulation film, a second step of etching the second insulation film and a third step of etching the first insulation film, an etching condition at the first step being different from that at the second step.

2. (Currently Amended) A method for fabricating the semiconductor device according to claim 1, further comprising:

before the step of forming the first insulation film, the step of forming over the conductor pattern a fourth insulation film having etching characteristics different from those of the first insulation film, and wherein

in the step of forming the first insulation film, the first insulation film is formed over the fourth insulation film so as to cover the conductor pattern, and

in the third step for etching the first insulation film, the first insulation film is etched with the fourth insulation film as a stopper.

3. (Original) A method for fabricating the semiconductor device according to claim 1, wherein

in the step of etching the first insulation film, the opening is opened down to the semiconductor substrate.

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4. (Original) A method for fabricating the semiconductor device according to claim 1,

wherein

in the step of etching the first insulation film, the opening is opened down to the conductor pattern.

5. (Original) A method for fabricating the semiconductor device according to claim 2,

wherein

in the step of forming the fourth insulation film, the fourth insulation film is formed selectively over an upper surface and a side wall of the conductor pattern.

6. (Currently Amended) A method for fabricating a semiconductor device comprising the steps of:

forming a first conductor pattern over a semiconductor substrate;

forming a first insulation film covering the first conductor pattern;

forming over the first insulation film a second insulation film having etching characteristics different from those of the first insulation film;

polishing the second insulation film;

forming over the second insulation film a third insulation film having etching characteristics different from those of the second insulation film;

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forming over the third insulation film a fourth insulation film having etching characteristics different from those of the third insulation film;

forming a hole in the fourth insulation film, the third insulation film, the second insulation film and the first insulation film; and

forming a second conductor in the opening hole,

the step of forming the hole including a first step of etching the fourth insulation film, a second step of etching the third insulation film, a third step of etching the second insulation film, and a fourth step of etching the first insulation film, an etching condition at the first step being different from that at the second step.

7. (Original) A method for fabricating the semiconductor device according to claim 6, wherein

in the step of polishing the second insulation film, the second insulation film is polished by chemical mechanical polishing.

8. (Original) A method for fabricating the semiconductor device according to claim 6, wherein

each of the first insulation film and the third insulation film is formed of silicon nitride, and

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each of the second insulation film and the fourth insulation film is formed of non-doped silicon oxide.

9. (Currently Amended) A method for fabricating a semiconductor device comprising the steps of:

forming a first conductor over a semiconductor substrate;

forming a first insulation film covering the first conductor;

forming over the first insulation film a second insulation film having etching characteristics different from those of the first insulation film;

polishing the second insulation film;

forming over the second insulation film a third insulation film;

forming over the third insulation film a fourth insulation film;

forming a hole exposing a second conductor in the fourth insulation film, the third insulation film and the second insulation film; and

forming a third conductor in the hole,

the step of forming the hole including a first step of etching the fourth insulation film, a second step of etching the third insulation film and a third step of etching the second insulation film, an etching condition at the first step being different from that at the second step.

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10. (Original) A method for fabricating the semiconductor device according to claim 9,

wherein

in the step of polishing the second insulation film, the second insulation film is polished by chemical mechanical polishing.

11. (Original) A method for fabricating the semiconductor device according to claim 9,

wherein

each of the first insulation film and the third insulation film is formed of silicon nitride, and

each of the second insulation film and the fourth insulation film is formed of non-doped silicon oxide.

12. Currently Amended) A method for fabricating a semiconductor device comprising the steps of:

forming an impurity doped region in a semiconductor substrate;
forming a first conductor over the semiconductor substrate;
forming a first insulation film covering the first conductor;
forming over the first insulation film a second insulation film having etching characteristics different from those of the first insulation film;
polishing the second insulation film;

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forming over the second insulation film a third insulation film;
forming over the third insulation film a fourth insulation film;
forming a hole exposing the impurity doped region in the fourth insulation film,
the third insulation film and the second insulation film; and
forming a second conductor in the hole,
the step of forming the hole including a first step of etching the fourth insulation
film, a second step of etching the third insulation film and a third step of etching the
second insulation film, an etching condition at the first step being different from that at
the second step.

13. (Original) A method for fabricating the semiconductor device according to claim 12,
wherein

in the step of polishing the second insulation film, the second insulation film is
polished by chemical mechanical polishing.

14. (Original) A method for fabricating the semiconductor device according to claim 12,
wherein

each of the first insulation film and the third insulation film is formed of silicon
nitride, and

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each of the second insulation film and the fourth insulation film is formed of non-doped silicon oxide.

15. (New) A method for fabricating the semiconductor device according to claim 1, wherein

in the step of forming the hole, an etching rate of the second insulation film at the first step is lower than an etching rate of the third insulation film at the first step and an etching rate of the second insulation film at the second step.

16. (New) A method for fabricating the semiconductor device according to claim 6, wherein

in the step of forming the hole, an etching rate of the third insulation film at the first step is lower than an etching rate of the fourth insulation film at the first step and an etching rate of the third insulation film at the second step.

17. (New) A method for fabricating the semiconductor device according to claim 9, wherein

in the step of forming the hole, an etching rate of the third insulation film at the first step is lower than an etching rate of the fourth insulation film at the first step and an etching rate of the third insulation film at the second step.

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18. (New) A method for fabricating the semiconductor device according to claim 12,

wherein

in the step of forming the hole, an etching rate of the third insulation film at the first step is lower than an etching rate of the fourth insulation film at the first step and an etching rate of the third insulation film at the second step.